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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/884,099	06/20/2001	Mihoko Shimano	P21143	2403

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EXAMINER

EDWARDS, PATRICK L

ART UNIT PAPER NUMBER

2621

DATE MAILED: 08/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/884,099

Applicant(s)

SHIMANO ET AL.

Examiner

Patrick L. Edwards

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 May 2005.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 26-37 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 26-37 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 08 december 2004.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

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DETAILED ACTION

1. The response received on 02 May 2005 has been placed in the file and was considered by the examiner. An action on the merits follows.

Response to Arguments

2. The arguments filed on 02 May 2005 have been fully considered. A response to these arguments is provided below.

35 USC 101 Rejections

Summary of Argument:

Claims 9 and 15 were rejected in the previous office action under 35 USC § 101. Applicant has cancelled these claims.

Examiner's Response:

The rejection has been rendered moot.

Claim Objections

Summary of Argument:

Claims 4-9 and 11-25 were objected to in the previous office action for various different reasons. Applicant has since cancelled these claims.

Examiner's Response:

The objection has been rendered moot.

35 USC 112, First and Second Paragraph Rejections

Summary of Argument:

Claims 5, 15, and 19 were rejected in the previous office action under 35 USC § 112(2) as being indefinite. Applicant has since cancelled these claims.

Examiner's Response:

The rejection has been rendered moot.

Prior Art Rejections

Summary of Argument:

Applicant has cancelled the previous set of claims and added claims 26-37. Applicant advances arguments that all three of the independent claims (26, 30, and 34) are now allowable over the previously cited references.

Examiner's Response:

The newly added claims will be addressed for the first time in the below rejection.

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Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 29, 31, 33, 35, and 37 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 31 and 35, the metes and bounds of the term “model image data” as recited in these claims is not clear. The parent claims refer to “image data” and “model object data” as separate entities which are compared with one another. Thus, it is confusing and unclear what the term “model image data” is referring to. As currently recited it could be referring to either the image data or the model object data.

Regarding claims 29, 33, and 37, these claims further limit the “predetermined condition” of the parent claims by listing four examples of what the predetermined condition can be. But the four listed conditions are not predetermined. Indeed, it appears that all four of these conditions (i.e. distance between a camera and an object, direction of an object with respect to a camera, weather, and time of day) constantly change depending on the location of the cameras. These conditions do not appear to be predetermined at all. Accordingly, the claims are inconsistent with their respective parents.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 26, 28-30, 32-34, 36, and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Laumeyer et al. (USPN 6,266,442) in view of Norimasa (JP 11078692 – abstract and printed figure, from IDS)

Regarding claim 30, Laumeyer discloses a plurality of cameras that each generate image data (Laumeyer figs. 3a and 3b).

Laumeyer further discloses a database for storing object model data (Laumeyer col. 3 lines 14-17 and col. 13 lines 54-56: The reference describes a database for storing an image list, which consists of the images (i.e. model data) of signs (i.e. model objects).).

Laumeyer further discloses a search range focusing section that selects a reduced portion of the image data (Laumeyer col. 9 lines 49-66: The reference discloses ‘tuning’ the ‘object search space.’).

Laumeyer further discloses an object recognition section that compares the selected portion of the image data to the stored model object data, selects stored model object data that has a highest similarity to the selected reduced portion of the image data, and detects an object from the image data using the selected model object data (Laumeyer

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col. 13 line 54 – col. 15 line 7: The reference discloses several methods for comparing or correlating detected images (i.e. image data within the search range) with the model images on the image list (i.e. the registered model data).).

As was stated above, Laumeyer discloses a database for storing model object data and a plurality of cameras for generating image data. Further, Laumeyer discloses that the images generated by an individual camera are associated with that camera (laumeyer col. 5 lines 45-49). Thus, Laumeyer discloses a single database that stores the images generated from the different cameras, these images being associated with the camera that generated it. Laumeyer therefore fails to expressly disclose a plurality of databases, each database being associated with an individual camera. Norimasa, on the other hand, discloses a system with a plurality of cameras, each camera having an individual camera associated with it (Norimasa, fig. 1 and abstract). It would have been obvious to one reasonably skilled in the art at the time of the invention to divide Laumeyers aggregate database into smaller, individual databases to be associated with each camera, as taught by Norimasa. Such a modification would have allowed for the memories to be physically closer to the cameras, thereby decreasing image transmission time. Further, Such a modification would have allowed for simpler control software system in that the images themselves would not have to contain complex header files associating themselves with a camera. The physical partitioning of the database would obviate such a step. Even further, Such a modification would simply make for a more modular system with better organization to the data storage.

As applied to claims 32 and 33, Laumeyer discloses an object recognition that selects the database (i.e. decides whether or not a captured image will be saved or not) based on a direction of an object with respect to a camera (laumeyer col. 17 lines 3-16: The reference selects images to be stored based on “orientation” (i.e. direction of an object).). As has already been stated, laumeyer fails to expressly disclose separate databases, but the combination of Laumeyer and Norimasa discloses separate databases for each camera. Images taken by the cameras would be subjected to the orientation condition, and if that condition is met, the image would be selected for saving. Since the images are associated with a database, the databases are therefore selected when the images are selected. Accordingly, the combination of Laumeyer and Norimasa teaches all the limitations of the claim.

As applied to claim 26, Laumeyer discloses that the object recognition section is provided for common use by the plurality of cameras (Laumeyer col. 9 lines 11-17).

Regarding claim 34, all of the limitations have been discussed with respect to claim 30.

Regarding claims 28, 29, 36, and 37, the features of these claims were discussed with respect to claims 32 and 33 above.

7. Claims 27, 31, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Laumeyer and Norimasa as applied above, and further in view of Gotsmann et al. (USPN 6,501,857). The arguments as to the relevance of the combination applied above are incorporated herein.

Regarding claim 27, which is representative of claims 31 and 35, Laumeyer discloses object recognition via image matching. Further, Laumeyer discloses a template matching method which uses a highest similarity to

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determine matches (Laumeyer col. 15 lines 8-22). Thus, Laumeyer broadly discloses an object recognition method and apparatus, but fails to expressly disclose the details required by the claim.

Gotsmann, on the other hand, discloses obtaining feature vectors by multiplying image data by a feature extraction matrix (Gotsmann fig. 2 and fig. 5: Box 500 of figure 2 shows the generation of vectors (i.e. feature vectors). Figure 5, which shows the details of this operation, describes that image data is multiplied to a feature extraction matrix.).

Gotsmann further discloses comparing these feature vectors with feature vectors obtained by multiplying image data with the already-determined feature vectors (Gotsmann fig. 2: convolving (which is a multiplication operation) the feature vectors with the target image.).

It would have been obvious to one reasonably skilled in the art at the time of the invention to use the object recognition method and apparatus taught by Gotsmann in the image matching operation of Laumeyer. Such a modification would have allowed for the efficient use of vector multiplication that would have resulted in an improved ability to quickly reject false matches (Gotsmann col. 3 lines 6-15).

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick L Edwards whose telephone number is (571) 272-7390. The examiner can normally be reached on 8:30am - 5:00pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joe Mancuso can be reached on (571) 272-7695. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

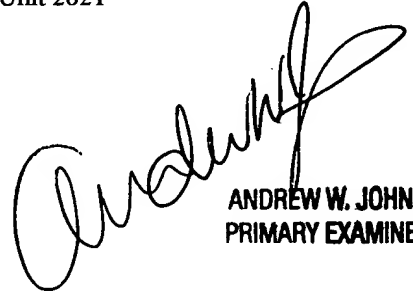
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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Patrick L Edwards

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ANDREW W. JOHNS
PRIMARY EXAMINER